

구두발표 5

Partial characterization of phosphotriesterase activity from the earthworm, *Eisenia andrei*

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Phosphotriesterase (PTE) receives attention because it seems to be associated with the detoxication of organophosphorous pesticides and organophosphate resistance mechanism. In order to understand the biodegradation of phosphotriester pesticides and its significance in the earthworm, a major non-target animal of pesticides, selected properties of phosphotriesterase activity derived from the crude extract of *Eisenia andrei* were investigated. PTE activity appeared to be primarily localized in intestinal tissues. The highest level of PTE activity was found in epithelial tissue. The native molecular weight of earthworm PTE was 260 kDa and the isoelectric point was approximately 4. The optimal pH was approximately 9. The earthworm PTE had a substrate anity for paraoxon with Km value in the millimolar range. The presence of EGTA and EDTA completely abolished the activity and replacement of Ca²⁺ ion restored activity to greater than 95%, suggesting that Ca²⁺ ion is essential to maintain the activity.

Key words: Earthworm, Phosphotriesterase, Characterization, Localization, Ca²⁺-dependent